ABSTRACT

In a free space communication network in which different communication nodes are linked together by directed beams, a method for dynamically configuring the topology of the network allows the transmission directions of the communication nodes to be autonomously changed to communicate with a new node as dictated by the needs of the network. Moreover, the nodes can be switched from directional to broadcast and back again on an as-needed basis. The network consists of a topology that can be rapidly and physically reconfigured as required to provide multiple connectivity, a desired quality of service, or to compensate with the loss of communication links between nodes. The loss of direct communication between any two nodes in an optical network can occur because of obscuration of the atmospheric path between the two nodes. The directed beam which provides the communication channel between the two nodes can, in this situation, be steered to direct its energy towards another accessible node.